

# RETURN

(113)

## CANADIAN NORTHERN RAILWAY.

APPROXIMATE estimates of the cost of construction of certain sections of the Canadian Northern Railway.

The Honourable A. G. BLAIR,  
Ottawa.

The approximate estimates of the cost of constructing certain sections of the Canadian Northern Railway, which were prepared for you last year, cannot be found. My recollection is that I handed them to you for use either in the "House" or in Council; since which I have not seen them. You probably have them carefully put away somewhere. However, we now have plans and profiles of these lines on file in the Department, and, based on these, I have had an approximate estimate of cost of construction prepared by Department Inspecting Engineer Simmons, which, being based on fuller and more accurate information than the estimate of last year, should, therefore, be more correct. It gives a higher cost per mile than the previous estimate.

Estimates attached hereto.

COLLINGWOOD SCHREIBER.



CANADIAN NORTHERN RAILWAY.

APPROXIMATE ESTIMATE OF COST OF LINE FROM GRANDVIEW TO EDMONTON, 620 MILES.

Item.	Description of Item.	Amount.	Rate.	Total.
			\$	\$
1	Right of way, ballast pit, &c..... Acres.	8,060	3 00	24,180 00
2	Clearing .... "	1,860	20 00	37,200 00
3	Grubbing ..... "	1,860	40 00	74,400 00
4	Loose rock excavation. .... Cu. yds.	496,000	0 50	248,000 00
5	Hard pan " .. "	992,000	0 40	396,800 00
6	Earth " .. "	6,200,000	0 23	1,426,000 00
7	Extra haul..... "	930,000	0 01	9,300 00
8	Ties, including sidings and freight charges .....	1,800,480	0 40	720,192 00
9	Rails, 60 lbs. per yard, delivered at Grandview..... Tons.	64,480	35 00	2,256,800 00
10	Angle bars delivered at Grandview..... "	3,255	40 00	130,200 00
11	Spikes delivered at Grandview..... "	2,480	65 00	161,200 00
12	Bolts and nuts delivered at Grandview... .. Lbs.	930,000	0377	35,061 00
13	Freight charges forwarding rails and fastenings west of Grandview at ½ cent per ton per mile ..... Tons.	35,185	1 55	54,636 75
14	Stations, section houses and grading sidings.....			177,940 00
15	Water service.....			56,000 00
16	Divisional points, including roundhouse, workshops, &c .....			206,400 00
17	Ballasting..... Cu. yds.	1,340,000	0 40	496,000 00
18	Four crossings, Saskatchewan River.....			868,000 00
19	Trestle bridges and culverts.. . Lin. ft.	31,000	10 00	310,000 00
20	Tracklaying ..... Miles.	620	250 00	155,000 00
21	Diamond crossing, interlocking plant and switches.....			47,024 00
22	Fencing, including gates..... Rods.	396,800	1 00	396,800 00
23	Telegraph line, complete for business .... Miles.	620	136 00	84,320 00
24	Survey, location and construction engineering..... "	620	400 00	248,000 00
				8,619,353 75
	Interest during construction and contingencies..... 10 p.c			861,935 37
	Rolling stock equipment..... Miles.	620	3,000 00	1,860,000 00
	Total.....			11,341,284 12

Total per mile, \$18,301.



# CANADIAN NORTHERN RAILWAY.

*Approximate Estimate of Cost of Construction.*

Cost per mile, \$18,856.83.



## CANADIAN NORTHERN RAILWAY.

## APPROXIMATE COST PER MILE OF RAILWAY.

*100 miles of Prince Albert Extension.*

13 acres right-of-way, ballast pits and lands at \$3.....	\$	39	00
800 c. y. loose rock excavation at 50c.....		400	00
1,600 c. y. hard pan excavation at 40c.....		640	00
13,600 c. y. earth excavation at 23c.....		3,128	00
2,040 c. y. extra haul at 1c.....		20	40
2,940 ties, including sidings with freight charges at 37½c.....		1,089	00
104 gr. tons 60-lb. rails, including sidings, del'd at end of track at \$36		3,744	00
5¼ gross tons angle bars	"	\$41	215 25
4 gross tons spikes	"	\$66	264 00
1,500 lbs. bolts and nuts	"	4c.	60 00
Freight charges in forwarding rails and fastenings west of end of track at ½c. per ton per mile as above, 113½ tons at 30c.....		34	05
Stations, section houses and grading sidings.....		349	00
Water service.....		90	00
Division points, including round-houses, turntables, workshops, machinery, coaling facilities, &c., and grading yard tracks...		463	00
Ballasting 2,000 c. y. at 40c.....		800	00
Crossing Saskatchewan River, including superstructure, substructure, falsework and trestle approaches.....		1,808	00
Other trestle approaches.....		500	00
Tracklaying.....		275	00
Diamond crossing, interlocking plant and switches.....		140	00
Fencing, including gates, 640 rods at \$1.....		640	00
Telegraph line, complete for business.....		136	00
Survey location and construction engineering, 3 p. c. on above...		445	04
		\$ 15,279	74
Interest during construction and contingencies, 10 p. c.....		1,527	97
		\$ 16,807	71
Rolling stock equipment per mile.....		3,000	00
Total per mile.....		\$ 19,807	71

R. F. TATE,  
Resident Engineer.

June 12th, 1903.

## CANADIAN NORTHERN RAILWAY.

## TIES.

*100 miles Prince Albert Extension.*

2,640 per mile.  
264 10 p. c. for sidings.  
— —  
2,904

Ties procured in Ontario, on line of Canadian Northern Railway between Steep Rock and Rainy River, an average mileage of 629 miles south-east of end of track



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with an additional average of 60 miles between end of track and Prince Albert, being a total average haul of 689 miles at  $\frac{1}{2}$ c. per ton per mile freight charges, amounting to \$3.45 per ton or \$51.75 per car load of 15 tons, which is 450 ties per car, amount to  $11\frac{1}{2}$ c. per tie.

Cost of tie on line.....	25 cents.
Freight.....	$11\frac{1}{2}$ “
Handling.....	1 “
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	$37\frac{1}{2}$ “

## CANADIAN NORTHERN RAILWAY.

## STATIONS, SECTION HOUSES AND GRADING SIDINGS.

*100 miles Prince Albert Extension.*

14 intermediate stations and section houses at 8 miles apart, at \$1,500.....	\$ 21,000 00
1 divisional station .....	5,000 00
Grading 14 sidings 2,000 ft. long, 2 ft. banks, 38,640 c. yds. 23c.	8,887 20
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	\$ 34,887 20

100 miles at \$349 per mile.

## CANADIAN NORTHERN RAILWAY.

## DIVISIONAL POINTS, ETC.

*100 miles Prince Albert Extension.*

1 10-stall roundhouse. ....	\$ 12,000 00
1 70-ft. steel turntable and pits complete .....	6,000 00
1 machine shop .....	8,000 00
1 car shed.....	5,000 00
1 coaling plant .....	6,000 00
1 sand house plant.....	1,000 00
1 ash pit.....	300 00
Grading 5 miles yard sidings at 7,000 c. yd. per mile, 35,000 c. y. at 23c.....	8,050 00
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	\$ 46,350 00

100 miles at \$463.

## CANADIAN NORTHERN RAILWAY.

## DIAMOND CROSSING, INTERLOCKING PLANT AND SWITCHES.

*100 miles Prince Albert Extension.*

28 single switches complete for passing sidings.	
40 “ “ 1 division yard.	
20 “ “ freight sidings on intermediate stations	
— and gravel pits.	
88 switches complete delivered where required, at \$88 .....	\$ 7,744 00
Placing in work at \$15 each.....	1,320 00
Say 1 interlocking plant installed complete.....	5,000 00
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	\$ 14,064 00

120 miles at \$140.



## CANADIAN NORTHERN RAILWAY.

## APPROXIMATE COST PER MILE OF RAILWAY FROM GRANDVIEW TO EDMONTON.

13 acres right-of-way, ballast pits and yards at \$3.....	\$	39 00
800 cubic yards loose rock excavation at 50c.....		400 00
1,600 " hard pan " 40c.....		640 00
13,600 " earth " 23c.....		3,128 00
2,040 " extra haul " 1c.....		20 40
2,904 ties, including sidings, with freight charges at 40c.....		1,161 60
104 gross tons 60-lb. rails, including sidings at Grandview at \$35		3,620 00
5 $\frac{1}{4}$ " angle bars " " \$40		210 00
4 " spikes " " \$65		260 00
1,500 lbs. bolts and nuts " " 377c		56 55
Freight charges in forwarding rails and fastenings west of Grandview, $\frac{1}{2}$ c. per ton per mile as above, 113 $\frac{1}{2}$ tons at \$1.55		176 00
Stations, section houses and grading sidings.....		287 00
Water service.....		90 00
Divisional points, including round-houses, turntables, work- shops, machinery, coaling facilities, &c., and grading yard tracks.....		333 00
Ballasting, 2,000 cubic yards at 40c.....		800 00
4 cross Saskatchewan River, including superstructure, substruc- ture, falsework and trestle approaches.....		1,400 00
Other trestle bridges and culverts.....		500 00
Tracklaying.....		275 00
Diamond crossing, interlocking plant and switches.....		76 00
Fencing, including gates, 640 rods at \$1.....		640 00
Telegraph line complete for business.....		136 00
Survey, location and construction engineering, 3% on above....		427 45
	\$	14,676 00
Interest during construction and contingencies, 10%.....		1,467 60
	\$	16,143 60
Rolling stock equipment per mile.....		3,000 00
Total per mile.....	\$	19,143 60

R. F. TATE,

June 12, 1903.

Resident Engineer.

## CANADIAN NORTHERN RAILWAY, GRANDVIEW TO EDMONTON.

## RIGHT OF WAY.

99 feet wide .....	12 acres per mile.
Additional for terminal and divisional yards, ballast pits and ordinary station grounds.....	1 acre "
Total .....	13 acres "



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CANADIAN NORTHERN RAILWAY, GRANDVIEW TO EDMONTON.

GRANDVIEW TO EDMONTON, 620 MILES.

Grading.

Average embankment  $3\frac{1}{2}$  feet, 16 ft. wide, slope  $1\frac{1}{2}$  to 1 ft.  
10 p.c. added for shrinkage.....16,000 cub. yds. per mile.

Classification.

10 p.c. hard pan, 5 p.c. loose rock, 85 p.c. earth.			
800	cub. yds. loose rock at 50c.....	\$	400 00
1,600	" hard pan at 40c.....		640 00
10,000	" earth at 23c.....		2,300 00
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12,400	" average at 26c.....	\$	3,340 00

CANADIAN NORTHERN RAILWAY, GRANDVIEW TO EDMONTON.

Ties.

2,640 per mile.  
264, 10 p.c. for sidings.  

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2,904

Ties procured in Ontario on the line of Canadian Northern Railway between Steep Rock and Rainy River, an average mileage of 427 miles east of Grandview, with an additional average of 310 miles between Grandview and Edmonton; being a total average haul of 737 miles at  $\frac{1}{2}$  cent per ton per mile freight charges amounting to \$3.68 per ton, or \$55.70 per carload of 15 tons, which averages 450 ties per car amounts to 14 cents per tie.

Cost of ties on lines.....	25 cents.
Freight.....	14 "
Loading and unloading.....	1 "
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Total cost delivered.....	40 "

CANADIAN NORTHERN RAILWAY, GRANDVIEW TO EDMONTON.

Rails and Fastenings.

94.3 gross tons 60 lb. rail per mile for main line.  
9.7 " " " sidings, divisional and terminal yards equal  
to about 10 per cent of main line.

Same for Fastenings.

Rates shown are for deliveries at Grand View.  
Freight charges added from Grand View west for 310 miles at  $\frac{1}{2}$ c. per ton per mile amounting to \$1.55 per ton as shown.

Cost of Rails.

Cost at manufacturers'.....	\$25 00 per ton
Ocean, lake and rail freight to Grandview.....	10 00 "
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Total delivered at Grandview.....	\$35 00



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## CANADIAN NORTHERN RAILWAY, GRANDVIEW TO EDMONTON.

*Stations, Section Houses and Grading Sidings.*

74 intermediate stations and section houses at 8 miles apart at \$1,500 .....	\$ 111,000 00
4 divisional stations at \$5,000 .....	20,000 00
Grading 74 sidings 2,000 ft. long 2 ft. banks 204,240 cy. at 23c .....	46,975 00
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	\$ 177,975 00
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620 miles at \$287.

## CANADIAN NORTHERN RAILWAY, GRANDVIEW TO EDMONTON.

*Water Service.*

40,000 gallon tanks with housed frames and power plant installed at \$2,000 each placed every 25 miles and including four high tower tanks at divisional yards, viz.:—

21 tanks completed, at \$2,000 .....	\$42,000 00
4 " " " \$3,500 .....	14,000 00
620 miles at \$90 ..	56,000 00

## CANADIAN NORTHERN RAILWAY; GRANDVIEW TO EDMONTON.

DIVISION and terminal points including round houses, turntables, workshops, machinery, coaling facilities, sand houses, ash pits, and grading yard tracks.

3, 10-stall round houses at \$12,000 .....	\$ 36,000 00
1, 20 " " " \$24,000 .....	24,000 00
4, 70-ft. steel turntables and pits complete at \$6,000 .....	24,000 00
3 machine shops at \$8,000 .....	24,000 00
1 " " \$12,000 .....	12,000 00
3 car sheds at \$5,000 .....	15,000 00
1 car repair shop at \$10,000 .....	10,000 00
4 coaling plants at \$6,000 .....	24,000 00
4 sand house plants at \$1,000 .....	4,000 00
4 ash pits, \$300 .....	1,200 00
Grading 20 miles yard sidings at 7,000 c. yds. per mile, 140,000 c. yds. at 23c .....	32,200 00
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	\$ 206,400 00
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620 miles at \$333.

## CANADIAN NORTHERN RAILWAY; GRANDVIEW TO EDMONTON.

Other trestle bridges and culverts estimated at 31,000 lineal feet at \$10, in work amounting to 620 miles at \$500 per mile. \$ 310,000 00



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CANADIAN NORTHERN RAILWAY; GRANDVIEW TO EDMONTON.

Four crossings Saskatchewan River including superstructures, substructures, false-work and trestle approaches.

4 steel superstructures at \$110,000 .....	\$ 440,000 00
4 concrete substructures at \$65,000 .....	260,000 00
4 timber falseworks erected and removed at \$12,000 .....	48,000 00
8,000 lineal feet lumber trestle approaches at \$15 .....	120,000 00
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	\$ 868,000 00

620 miles at \$1,400 per mile.

CANADIAN NORTHERN RAILWAY; GRANDVIEW TO EDMONTON.

*Ballasting.*

2,000 c. yds. at 40c .....	\$ 800 00
Diamond crossings, interlocking plant and switches.	
148 single switches complete for passing sidings.	
160 single switches complete for 4 divisional yards.	
100 single switches complete for freight sidings on intermediate stations and gravel pits.	
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408 switches complete delivered where required at \$88 .....	\$ 35,904 00
Placing in work, at \$15 each .....	6,120 00
Say 1 interlocking plant installed complete .....	5,000 00
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	\$ 47,024 00

620 miles at \$76 per mile.

CANADIAN NORTHERN RAILWAY: GRANDVIEW TO EDMONTON.

TELEGRAPH LINE COMPLETE FOR BUSINESS.

*Cost per Mile.*

35 telegraph poles delivered at \$1.50 .....	\$ 42 50
575 lbs. No. 6 wire delivered at 3c .....	17 25
330 lbs. No. 9 wire delivered at 2½c .....	8 75
35 cross arms delivered at 28c .....	9 80
70 insulators delivered at 4c .....	2 80
70 toppins delivered at 1½c .....	0 78
70 lag screws delivered at 3c .....	2 10
140 washers delivered at ¼c .....	0 35
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	\$ 83 83
Erection .....	50 00
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	\$ 133 83
Station equipment and batteries—	
36 ordinary stations at \$25 .....	\$ 900 00
4 divisional stations at \$200 .....	800 00
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	\$ 1,700 00
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Per mile .....	2 75
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	\$ 136 58



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## CANADIAN NORTHERN RAILWAY: ROLLING STOCK.

FOR GRANDVIEW, EDMONTON AND PRINCE ALBERT LINES, 720 MILES.

1,440 box cars at \$900.....	\$ 1,296,000 00
50 locomotives at \$18,000 .....	900,000 00
15 first class coaches at \$10,000.....	150,000 00
10 second class coaches at \$6,000.....	60,000 00
8 baggage, mail and express cars at \$3,000.....	24,000 00
6 sleeping cars at \$22,000.....	132,000 00
2 dining cars at \$20,000.....	40,000 00
10 cabooses at \$1,200 .....	12,000 00
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	\$ 2,614,000 00
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720 miles at \$3,630 per mile.







